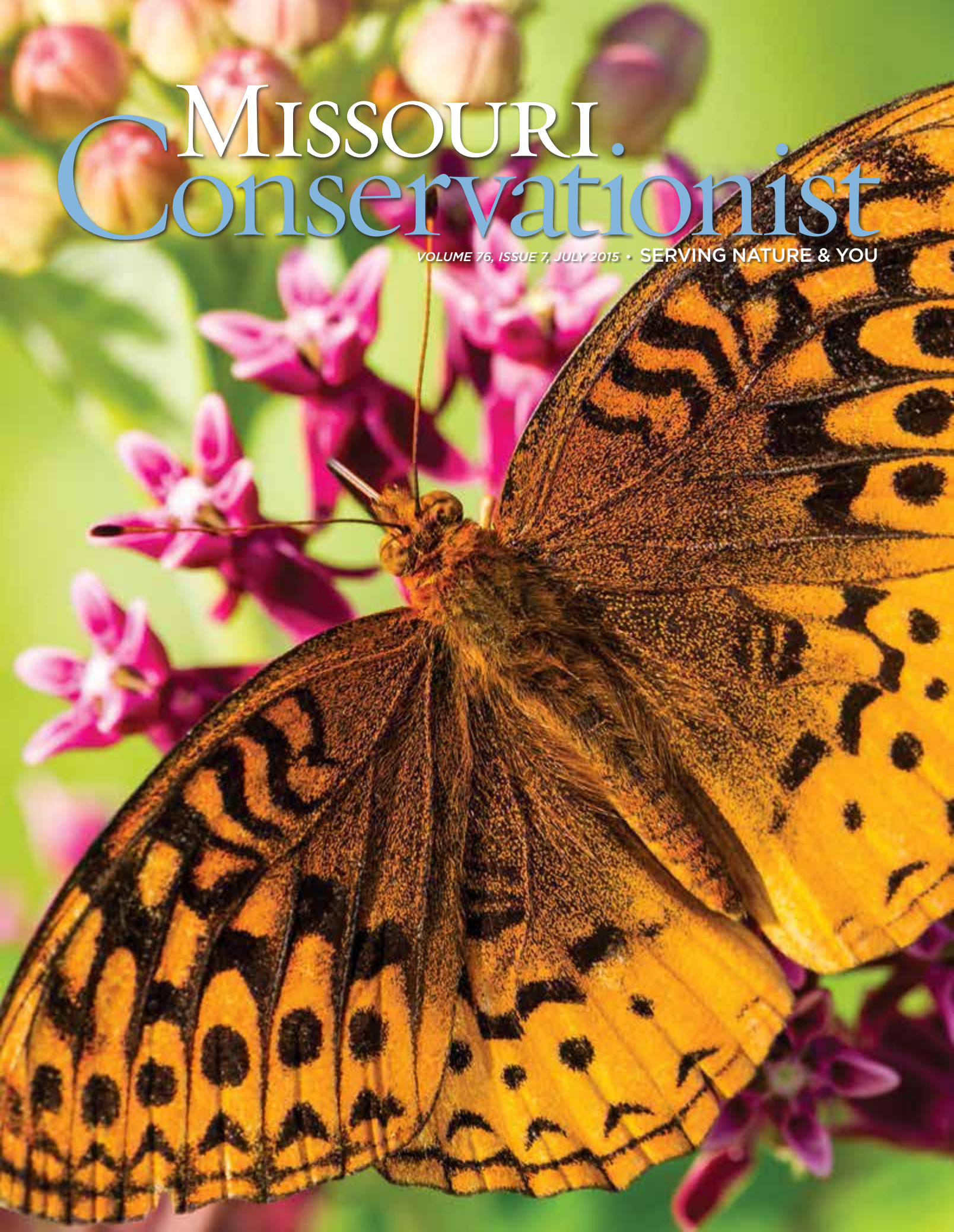


# MISSOURI. Conservationist

VOLUME 76, ISSUE 7, JULY 2015 • SERVING NATURE & YOU





## [NOTE TO OUR READERS]

# Get Outdoors for Some Reel Fun This Summer

It's been an exciting year for fishing in Missouri. There have been six new Missouri state record fish already recorded in 2015. When you see the pictures of these massive fish and the excitement of the anglers who

wrangled them in, you are reminded of the summer splendor of fishing in Missouri. However, regardless of the size of one's catch, relax and enjoy your fishing adventures with family and friends.

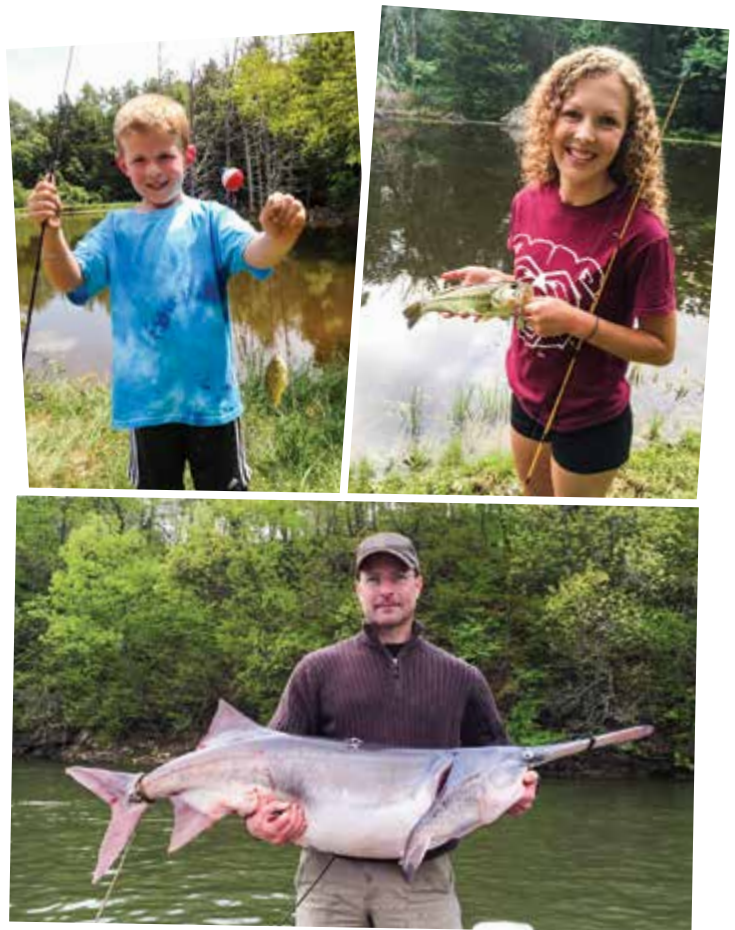
For many, fishing is the first gateway to the great outdoors. It is an activity for the whole family, young and old, with minimal supplies needed and lots of fishing spots close to home. With more than 1.1 million anglers in the state, Missouri has a long and rich tradition of fishing, with abundant lakes and streams producing exceptional fish for anglers of all ages.

The Department raises and stocks approximately 10 million fish each year from our four warm-water hatcheries, including paddlefish, striped bass, catfish, walleye, muskie, lake sturgeon, and pallid sturgeon. The five cold-water hatcheries raise and stock close to 5 million rainbow and brown trout each year. Not only are the hatcheries interesting places to visit with their educational exhibits and special tours, but they help provide a diverse fishing opportunity for anglers across the state.

The Department has two fishing programs to acknowledge and honor anglers for their catches. The Missouri State Record Fish Program recognizes the largest fish in two categories — pole-and-line and alternative methods. To qualify, fish must be caught by legal methods from Missouri waters, be a species included on the Missouri state record fish list, meet or exceed the current record, and be examined and weighed by Department staff. Anglers are awarded a plaque and a coveted place on the state record fish list.

The Master Angler Award program recognizes anglers who catch memorable or trophy-size fish in Missouri even though they aren't state record holders. For example, a young angler recently caught a 4-pound, 11-ounce black crappie, which was a whopper, but did not break the state record of 5 pounds. After completing an application, an official certificate is sent to honor that significant catch in Missouri. For more information on both of these fishing programs, visit [mdc.mo.gov/node/2476](http://mdc.mo.gov/node/2476).

The Department strives to keep Missourians informed about great fishing opportunities around the state. We have a free Find MO Fish app available at [mdc.mo.gov/node/15421](http://mdc.mo.gov/node/15421), which provides quick access to weekly fishing reports, fishing



hot spots, regulation information, and a comprehensive fish guide. It's a handy tool for new and seasoned anglers.

We have great fishing in Missouri. I hope you'll find time this summer to enjoy the outdoors and experience it firsthand. Perhaps you'll even be the next state record holder with your photo in the news. I look forward to seeing that this summer.

Robert L. Ziehmer, director

## FEATURES

### 10 **Insect Safari**

*story by Jeff Cantrell, photographs by David Stonner,*

*illustrations by Steve Buchanan*

Adventure awaits in your own backyard

### 16 **Learning About Largemouth**

*by Mike Allen, photographs by David Stonner*

A little knowledge and basic gear can help you land a lot of tasty table fare

### 22 **Campfire Cooks of MDC**

*by Larry R. Beckett, photographs by Cliff White*

Department employees share their experiences with outdoor cooking and some tricks, tips, and recipes learned along the way

Cover: A great spangled fritillary butterfly feeds on a milkweed flower. Photograph by Noppadol Paothong. To find insects in your own backyard, read *Insect Safari*, starting on Page 10.

📷 180mm macro lens • f/7.1 • 1/320 sec • ISO 400

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## WHAT IS IT?

Our photographers have been busy exploring the intricacies of outdoor Missouri. See if you can guess this month's natural wonder. The answer is revealed on Page 8.





## MISSOURI WATERS

My family and I enjoy the waters of southwest Missouri. We spend most of our time fishing. Seems that when we fish, mostly trolling in Bull Shoals Lake, we spend a lot of time picking up the trash from careless boaters. We don't mind doing so, but sure wish other users of our beautiful waterways would exercise a bit more caution with loose trash in their boat. Bag it and take it out to a proper dumping station. If we all would do a little more to help keep it clean, it can be a great enjoyment to generations to come.

Elmer Davis, via email

I enjoyed the article on Ozark streams [*Viva le Dolomieu*; Page 10] in your May issue. The words and photos fully captured the unique beauty of these clear and cool streams of our state, flowing by majestic dolomite bluffs. But,

they are under constant threat from overuse and destructive recreational practices. The legendary Missouri naturalist Leonard Hall told wonderful stories about fishing and camping on these streams in his book, *Stars Upstream*, published over 60 years ago. As he stated then, "The need to preserve areas that are wild and natural increases in America with each day that goes by; for it has been truly said that 'wilderness is a resource which can shrink but never grow.'"

Dudley McCarter, via email

## THE LURES OF FISHING

I was born in Fredericktown, Missouri, many years ago. One of my greatest memories was receiving the monthly *Missouri Conservationist*. My dad would quickly take the magazine and read it from cover to cover. I then got to look

and learn from the wonderful stories inside. I was reminded of one when I opened the May issue and read how to make a foam spider fishing lure [*How to Bug a Bluegill*; Page 16]. Approximately 56 years ago, I followed the directions in the magazine to make a popping bug from a clothes pin. I completed the project and was lucky enough to catch several bass with it. I showed my son how to make the clothes pin bug from scratch, and he was very excited and used it for years.

Dale Bailey, via email

*Editor's Note:* To access How to Make a "Popping Bug" for Particular Bass, which appeared in the May 1944 issue of the *Missouri Conservationist*, visit <http://on.mo.gov/1BMtyC2>.

## OLD-TIME HUNTING

*Smokepole Squirrels* [Page 24; May] ... I loved this article. I really like to get a feel for the way people used to hunt and the tools of the trade, and this really captured that.

Daryl Price, via email

## BLACK BEARS

Noppadol Paothong's article on Missouri's black bears [*Plants and Animals*, May] was wonderful. Having hunted black bears in Ontario, Canada, I can relate to his experience. I had a bear try to climb a tree that I was in. Seeing a black bear at a range of 5 feet can be unnerving, much like Noppadol's experience. It is great that a noble animal like the black bear is making her home in Missouri. I hope the population keeps expanding for this former native animal.

Wayne Munkel, University City

## THE DIY OUTDOORSMAN

I really enjoy your magazine and all of the information it gives about the outdoors. My favorite articles are the ones that give fishing tips and DIY solutions to outdoor problems, like how to make your own fishing lures. I am a Boy Scout and have found articles in this magazine helpful to my scouting on many occasions. Thank you for this amazing magazine.

Patrick Lynch, via email



### Reader Photo

### IT'S LUNCHTIME!

Scott O'Dell of Liberty, Missouri, captured this image of a bobcat with a rabbit lunch on one of the trail cameras he maintains on his property near Eagleville, Missouri. He visits the land most weekends. "I enjoy archery and firearms hunting for deer, turkey, and upland birds," said O'Dell. "The west fork of Big Creek passes through the property. It's quite diverse ground, typical of northern Missouri hill country." O'Dell maintains several trail cameras on the land. "We really enjoy seeing pictures of the deer and other wildlife, like bobcats, coyotes, and turkeys," said O'Dell. "During the fall of 2014, we had a new sighting: a bald eagle was nesting on our south boundary fence row."



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Flickr: [flickr.com/photos/mdc\\_online](https://www.flickr.com/photos/mdc_online)

Instagram: [instagram.com/moconservation](https://www.instagram.com/moconservation)

Kids' site: [XplorMo.org](http://XplorMo.org)

Missouri Conservationist: [mdc.mo.gov/node/83](http://mdc.mo.gov/node/83)

Missouri Department of Conservation: [mdc.mo.gov](http://mdc.mo.gov)

Nature Shop: [mdcnatureshop.com](http://mdcnatureshop.com)

Twitter: [twitter.com/MDC\\_Online](https://twitter.com/MDC_Online) and [Nature\\_Videos](https://twitter.com/Nature_Videos)

YouTube: [youtube.com/user/moconservation](https://www.youtube.com/user/moconservation)

## KIDS' MAGAZINE

Six times a year we'll bring you eye-popping art, photos, and stories about Missouri's coolest critters, niftiest natural places, and liveliest outdoor activities. Come outside with us and XPLOR!

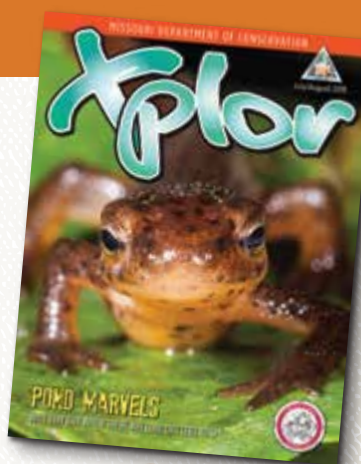
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Scientists convene to discuss the mysteries of the swarming impulse in lower animals.

## Agent Notes

### Get Away From Summer Heat

JULY IN MISSOURI means hot, sultry days, but that doesn't mean you have to stay cooped up inside. There are ways to beat the heat and still enjoy the outdoors.

Missouri is home to thousands of miles of rivers and streams and numerous public lakes. One way to enjoy a hot day is kayak fishing on a river or stream. If you prefer a bigger boat, you can still beat the heat on a Missouri lake. Try nighttime crappie fishing under lights or working the banks for bass using a top-water plug. These can be effective ways to catch fish in the cooler night air.

A night hike on a familiar trail is another way to enjoy nature from a different perspective. This is a great way to see and hear nocturnal wildlife not normally associated with daytime heat. You will notice things at night previously missed during the day. Calling to owls and listening to them call back in the tree canopy overhead is an enjoyable activity for children.

Try some new activities to beat the heat while spending time in the outdoors.

**Zeb Jordan** is the conservation agent for St. Clair County. If you would like to contact the agent for your county, phone your regional conservation office listed on Page 3.



## HUNTING & FISHING CALENDAR

FISHING	OPEN	CLOSE
Black Bass from Ozark Streams	05/23/15	02/29/16
Bullfrogs and Green Frogs	Sunset	Midnight
	06/30/15	10/31/15
Nongame Fish Giggling		
Impounded Waters	02/01/15	01/31/16
Streams	09/15/15	01/31/16
Paddlefish on the Mississippi River	09/15/15	12/15/15
Trout Parks		
Catch-and-Keep	03/01/15	10/31/15
HUNTING	OPEN	CLOSE
Coyote (restrictions apply during April, spring turkey season, and firearms deer season)	All year	None
Deer		
Archery	09/15/15	11/13/15
	11/25/15	01/15/16
Firearms		
Urban Zones Portion	10/09/15	10/12/15
Early Youth Portion	10/31/15	11/01/15
November Portion	11/14/15	11/24/15
Antlerless Portion (open areas only)	11/25/15	12/06/15
Alternative Methods Portion	12/19/15	12/29/15
Late Youth Portion	01/02/16	01/03/16
Groundhog (woodchuck)	05/11/15	12/15/15
Pheasant		
Youth	10/24/15	10/25/15
Regular	11/01/15	01/15/16
Quail		
Youth	10/24/15	10/25/15
Regular	11/01/15	01/15/16
Rabbit	10/01/15	02/15/16
Squirrel	05/23/15	02/15/16
Turkey		
Archery	09/15/15	11/13/15
	11/25/15	01/15/16
Firearms		
Fall	10/01/15	10/31/15

Waterfowl see the *Waterfowl Hunting Digest* or [mdc.mo.gov/node/3830](http://mdc.mo.gov/node/3830)

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, *The Spring Turkey Hunting Regulations and Information*, *the Fall Deer and Turkey Hunting Regulations and Information*, *the Waterfowl Hunting Digest*, and the *Migratory Bird Hunting Digest*. For more information, visit [mdc.mo.gov/node/130](http://mdc.mo.gov/node/130) or permit vendors.

# Ask MDC

**Address:** PO Box 180, Jefferson City, MO 65102-0180  
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Periodical cicada

## **I read in the news that periodical cicadas are emerging in Missouri. Are those different than the cicadas we hear every year?**

Periodical cicadas are so named because the broods emerge in 13-year or 17-year cycles. Periodical cicadas make a sudden, massive appearance, usually in areas with trees, with loud raspy choruses and a multitude of shed skins left behind on tree trunks. By emerging in huge numbers, cicadas overwhelm their predators' numbers and ability to feed on them, so any individual cicada has a good chance of surviving and reproducing. Periodical cicadas appear in late May and June, while annual cicadas appear each year in July and August. Striking red eyes and blackish bodies distinguish periodical cicadas, while annual cicadas have

greenish or brownish bodies, dark eyes, and are about 2 inches long. Periodical cicadas are slightly smaller. For more information, visit [mdc.mo.gov/node/12097](http://mdc.mo.gov/node/12097).

## **Are there a lot of different types of snakes in Missouri? How do I tell if a snake is venomous or not?**

With its wide variety of habitats, such as prairies, Ozark hills, swamps, and marshes, Missouri is home to 46 different species and subspecies of snakes. Snakes are an important part of the natural wildlife food chain. They reduce populations of destructive rodents and, in turn, are prey to hawks, great blue herons, and game fish. Most of our snakes are harmless. Although many bite in self-defense, their bites usually produce nothing more than harmless

scratches. There are only five species of venomous snakes in all of Missouri. In daylight, these venomous snakes have eyes with vertical pupils — like a cat — while all harmless snakes have round pupils. Though few people in Missouri have suffered venomous snakebites, and most of those incidents occurred when people were trying to kill or handle the snake, you should seek medical attention immediately in the event of a venomous snakebite. To learn more about snakes, visit our field guide for photos and descriptions of Missouri snakes at [mdc.mo.gov/node/73](http://mdc.mo.gov/node/73).

## **What are these speckles in the fish I caught at a lake?**

The black spots you see are a worm called a black grub. These fish parasites form a small, dark-colored cyst around themselves, which makes them appear dark and easy to spot. These grubs are found most often in the fins of fish, but can also be found in the flesh. Almost all fish have a few parasites. A fillet that is completely covered with black grubs can look unappetizing; however, once the fish is thoroughly cooked, the parasites disappear and cannot be tasted. For more information on this topic, visit [tinyurl.com/ncogkjc](http://tinyurl.com/ncogkjc).



Black grubs





## Missouri Loses a True Forest Pioneer

Leo A. Drey (Jan. 19, 1917–May 26, 2015)

Few people who met Leo Drey floating down the Current River circa 1950 would have guessed that he would alter the course of Missouri history. And if, some 50 years later, you had happened to

glance into his slightly disheveled office, lined with yellowing ledger books, in downtown St. Louis, you would not have guessed it was the center of a sprawling enterprise that had

changed the way Missourians think about forests.

Drey died May 26 at his University City home. His quiet, modest manner masked big dreams. When he covered his eyes with one hand, as he often did when deep in thought, the gesture bespoke a vision that transcended current realities. He was seeing a better tomorrow.

Drey was an unlikely conservation pioneer. He grew up in St. Louis, the son of an industrialist who manufactured “Drey’s Perfect Mason Jar.” After military service in World War II, Leo took a job as assistant treasurer with a shoe manufacturer. But by 1950, he decided he didn’t want to be a businessman. He had acquired a taste for the outdoors during float trips on the Current River, and he wanted to be outdoors and help preserve the Ozarks’ pristine beauty.

In the late 19th and early 20th centuries, virtually all of Missouri’s old-growth forest had been over cut. Companies bought vast tracts of timber, cut all the trees that could be turned into lumber, railroad ties, fence posts, or fuel — and left.

The legacy of such “cut-and-run” logging included eroded hills, streams choked with silt and gravel, and land so poor that farmers simply turned their cattle and hogs out to “free range” on what little food they could find. Fires set each spring were meant to encourage herbaceous growth for livestock forage but only added to the ecological devastation.

Drey was deeply concerned about the discouraging state of the Ozark forests and dreamed of restoring the forests to their former grandeur. But before he could paint a brighter future for Missouri forests, he needed a canvas.

With his own savings and an inheritance, he began buying abused land. His first purchase was 1,400 acres in Shannon County. Then he got a huge break. In 1953, the National Distillers Products Company in New York decided to sell its Ozarks holdings, nearly 90,000 forested acres in Shannon and Reynolds counties. Drey’s purchase of the land was the largest in Missouri history, and it marked the beginning of Pioneer Forest [[ladfoundation.org](http://ladfoundation.org)].

The name reflected not only the vision of its new owner, but the land’s history. It had previously belonged to Pioneer Cooperage, whose professional foresters had not permitted clear-cutting. Instead, they managed the forest by selectively



cutting mature trees for oak barrel staves.

With the help of Pioneer Forest Manager Clint Trammel, Drey set out to develop a management strategy that turned a profit while protecting the land and leaving the forest looking like forest. Their experiment led to a method of selective logging. In contrast to even-age harvests, Pioneer Forest harvested only individual trees to ensure the health of the forest was sustained. The forest was divided into separate tracts that were evaluated periodically to identify harvestable trees, leaving the forest as beautiful as if the trees had simply died of old age.

The practicality of “uneven-age” forest management became apparent in the profits it generated. Drey invested those profits in more forest land and eventually became Missouri’s largest private forest landowner. Pioneer Forest grew to more than 160,000 acres.

Then he gave most of it away.

Having proved the practicality of managing forests through selective, single-tree harvest, Drey and his wife, Kay, provided for the future of Pioneer Forest by deeding 147,000 acres to the L-A-D (Leo A. Drey) Foundation, which continues to manage the land for sustainable yield of forest products. But Pioneer Forest is about much more than timber harvest. It is open to the public for hunting, fishing, hiking, camping, and other outdoor pursuits. Its mission also includes encouraging academic research in archaeology, botany, forestry, geology, cave biology, ornithology, ecology, and other subjects.

The L-A-D Foundation leases some of its holdings to the Missouri departments of Conservation and Natural Resources for management as state parks (including Dillard Mill State Historic Site and Grand Gulf State Park) and seven Missouri natural areas (including Current River Natural Area, Virgin Pine Forest along Highway 19, and the Scenic Riverways Corridor Lands.)

Pioneer Forest is not the Dreys’ only contribution to conservation. When Greer Spring, Missouri’s second-largest spring, went up for sale, they bought it to prevent its development as a commercial bottled-water operation. They later sold it to the USDA Forest Service at a substantial loss. They also helped organize the St. Louis Open Space Council and the Missouri Coalition for the Environment.

The greeting on Leo’s office answering machine summed up his dream: “I’m out planting a forest. Please leave your name and number, and I’ll try to get back to you before it matures.” He lived to see his trees and his dreams mature.

We’ll see you down the river, Leo. Until then, thank you for sharing your dream.

To view the Department’s video about Leo Drey and Pioneer Forest, visit [mdc.mo.gov/node/19813](http://mdc.mo.gov/node/19813). —Jim Low



## CONSERVATION COMMISSION ACTIONS

The May Commission meeting featured an unveiling of the newest mural by staff Wildlife Artist Mark Raithel. This latest work in the Department’s *Conservation Advances in Missouri* series represents a decade of conservation history and accomplishments from 2000 through 2009. Presentations and discussions included avian influenza, final deer season attributes and CWD management challenges, and the strategic planning process. A summary of actions taken during the May 28–29 meeting for the benefit and protection of forests, fish, and wildlife, and the citizens who enjoy them includes:

- » **Approved** final order of rulemaking that sets parameters for use of Conibear® traps in water.
- » **Approved** orders of rulemaking to establish availability of resident landowner firearms antlerless deer hunting permits by county for those owning 75 or more contiguous acres, remove the antler point restriction in specific counties, eliminate the Columbia/Jefferson City urban zone, and establish availability of firearms antlerless deer permits by county, effective for the 2015–2016 Fall Firearms Deer Season.
- » **Approved** conservation area deer hunting regulations and managed hunts for the 2015–2016 Fall Firearms Deer Season.
- » **Approved** orders of rulemaking to establish options for the 2015 Early Migratory Bird Season dates and limits.
- » **Approved** Conservation Commission Fund Fiscal Year 2016 Internal Expenditure Plan.
- » **Approved** a contract with ASA Asphalt, Inc. for the construction of 200 acres of wetlands, three spillways, and six footbridges on Duck Creek Conservation Area (CA) in Bollinger, Stoddard, and Wayne counties.
- » **Approved** authorization to advertise and sell 953,941 board feet of timber located on 536 acres of Compartment 14, Sunklands CA in Shannon County, to be sold in two harvest units (Sale 1 and Sale 2). The harvest will improve forest health and wildlife habitat.
- » **Approved** the conveyance of .06 acre of Rockwoods Reservation in St. Louis County to the City of Wildwood for a bridge replacement project and to grant the City of Wildwood a temporary construction easement on an additional .25 acre until the project is complete.
- » **Approved** the conveyance of .02 acre of Rockwoods Range in St. Louis County to the City of Wildwood for a bridge replacement project and to grant the City of Wildwood a temporary construction easement on an additional .145 acre until the project is complete.
- » **Approved** the sale of .89 acre of Bear Creek CA in Laclede County.
- » **Approved** the purchase of 752 acres in Livingston County as an addition to Fountain Grove CA. The tract is a mix of open fields, forest, wetlands, and stream frontage with 627 acres enrolled in a long-term easement through the Federal Wetland Reserve Program.

The next Conservation Commission meeting is July 9 and 10. For more information, visit [mdc.mo.gov/node/3430](http://mdc.mo.gov/node/3430) or call your regional Conservation office (phone numbers on Page 3).

## [NEWS & EVENTS]

(continued from Page 7)

### New and Improved Archery Range on Busch Conservation Area

The archery range on the August A. Busch Memorial Conservation Area in St. Charles recently reopened to the public following the completion of an extensive renovation project that began last fall. A dedication ceremony and public open house were held June 4.

The new archery range occupies the same location as before, but now offers a static range with 20 targets, including 14 targets arranged from 10–40 yards in 5-yard increments. The complex also offers one elevated platform, approximately 10 feet high, with Americans with Disabilities Act (ADA) access that includes six targets, one every 5 yards between 15 and 40 yards. The static range has ADA parking spots and ADA-compliant concrete sidewalks and accesses.



In addition, there are two walk-through field archery ranges that include a mile-long loop trail and a ½-mile out-and-back trail with 14 target stations each. Different target distances from

**Conservation Commission Chairman James T. Blair, IV and his wife, Anna, take the first shots at the new Busch Archery Range. As ardent outdoor enthusiasts, they enjoy hunting and fishing and are accomplished archers.**



## WHAT IS IT?

### Common Buckeye Butterfly | *Junonia coenia*

Although many butterflies are named for their food plants, this one is named for the bold eyespots on its wings, and not for any relationship to the trees called “buckeyes.” This common summer resident can be found statewide in all kinds of open habitats. The adults visit a variety of flowers and are also attracted to decaying fruit and moist places. The abundance of this species varies from year to year. Some years it is very common, and in other years it is almost absent. Adults fly from spring through fall, with several broods during this time. Eggs are laid singly on buds and leaves of host plants. —photograph by Noppadol Paothong

10–60 yards are available on both walk-through ranges. Each target lane includes a short-marked distance and a longer-marked distance to accommodate different skill levels.

The range’s normal operating hours are Tuesday through Sunday, a half-hour before sunrise to a half-hour after sunset, unless otherwise posted. The range is closed on Mondays for maintenance. The range is unstaffed and free of charge on a first-come, first-served basis.

The Busch Shooting Range and Outdoor Education Center, which is separate from the archery range complex, closed its doors at the end of 2014 to make way for construction of an expanded, state-of-the-art shooting range on the current property. You can now watch the daily progress of this renovation project through two web cameras that give a high-level view of the construction site at [mdc.mo.gov/node/30020](http://mdc.mo.gov/node/30020).

The new Busch shooting range will incorporate the most current national shooting range design standards, including an increased number of shooting stations, new classroom facilities, and improvements for user convenience and to reduce waiting times. The entire project is part of the Department’s ongoing commitment to help Missourians improve their outdoor skills and discover nature, and is expected to take 24–30 months, depending on construction and



weather. To stay informed on the Busch shooting range renovation project, visit the Department's online renovation update blog at [mdc.mo.gov/node/29307](http://mdc.mo.gov/node/29307).

## Great Catch: Missouri Anglers Capture State Record Fish

Two Missouri anglers caught record-breaking fish within a month of each other to capture state records for two different fish species.

John Overstreet of Fayette captured the new alternative-method record for bigmouth buffalo when he shot one with a bow and arrow on Pomme de Terre Lake. The fish was shot in But-ton Cove and weighed 54 pounds, breaking the previous record, a bigmouth buffalo snagged on the Lake of the Ozarks in 1996 and weighing in at 53 pounds. Conservation staff verified the catch using a certified scale at Alps Grocery in Pittsburg.

"Once I shot the fish I knew I had a decent one, but it wasn't until we got it in the boat I knew I had a giant," Overstreet recalled. "It took three arrows to get the massive fish in the boat. I still can't believe I got this fish!"

Lawrence Dillman of Rockaway Beach broke another state fishing record a few weeks later when he hooked a giant striped bass on Bull Shoals Lake using a rod and reel. The new pole-and-line record striped bass weighed 65 pounds, 10 ounces, with a length of 49¾ inches and a girth of 36 inches. Dillman used 20-pound test line and a chub minnow to catch the behemoth.

The new giant broke the previous pole-and-line state record striped bass of 60 pounds, 9 ounces caught on Bull Shoals Lake in 2011. Conservation Department staff verified the fish using a certified scale at the Department's Shepherd of the Hills Hatchery in Taney County.

"Once the fish was on the line, I knew I had a decent one, but I didn't at all think it was a striped bass," Dillman said. "I've caught bigger fish in the ocean, but this fish is the biggest fresh-water fish I have ever caught."

Missouri state record fish are recognized in two categories: pole-and-line and alternative methods. For more information on state record fish, visit [mdc.mo.gov/node/2476](http://mdc.mo.gov/node/2476). You can also go online to download our free Find MO Fish app at [mdc.mo.gov/node/15421](http://mdc.mo.gov/node/15421) to access great fishing spots, regulations, and the weekly fishing report.

## DID YOU KNOW?

*Conservation makes Missouri a safe place to hunt.*

### Hunter Education is Required for Most Hunters

» **Why does Missouri require hunter education?** Hunter education, along with other safety regulations, has reduced hunting incidents by more than 70 percent since it became mandatory in 1987. For this reason, we recommend *all* hunters become hunter-education certified.

» **Who MUST become hunter-education certified?**

If you plan to hunt during a Missouri firearms season or you are acting as an adult mentor, you **MUST** first complete an approved hunter-education certification program and provide proof of completion **UNLESS**:

- You are 15 years or younger and will be hunting with a properly permitted adult mentor 18 years of age or older.
- You were born before Jan. 1, 1967.
- You received a disability exemption from Missouri Department of Conservation's Protection Division.
- You are 16 years or older and have purchased an Apprentice Hunter Authorization and will be hunting with a properly permitted adult mentor 18 years of age or older.
- You are the landowner or lessee hunting on land you own or upon which you reside.
- NOTE: If you can prove you completed an approved hunter education course in another state, you are not required to take Missouri's Hunter Education Course.

» **What does the Missouri Hunter Education Course cover?**

A range of topics and skills designed to create safe, ethical, knowledgeable, and successful firearms hunters make up the course. Browse the list of topics at [mdc.mo.gov/HunterEducation](http://mdc.mo.gov/HunterEducation).

» **Who can take the course?** Anyone, but you must be age 11 or older to be certified.

» **How do I earn a Missouri Hunter Education Certificate?**

The course has two parts: knowledge and skills. You must complete and pass BOTH parts to earn your certificate.

» **Can kids try hunting without becoming hunter-education certified?** Yes! We recommend that youth begin hunting with an adult mentor to become familiar with hunting and terminology before taking the course.

» **Can adults try hunting without becoming hunter-education certified?** Yes! Our Apprentice Hunter Authorization lets people 16 years of age and older try hunting as long as they hunt with a properly permitted adult (18 or older) mentor.

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To learn all the details about taking and passing Missouri's Hunter Education Course, visit [mdc.mo.gov/HunterEducation](http://mdc.mo.gov/HunterEducation).

# INSECT SAFARI

STORY BY JEFF CANTRELL  
PHOTOGRAPHS BY DAVID STONNER  
ILLUSTRATIONS BY STEVE BUCHANAN



*Adventure awaits in your own backyard*











SEVEN-SPOTTED  
LADYBEETLE

Looking for a summer adventure that will get the entire family outdoors without a lot of travel time or expense? Look no further than your own backyard. Insects are Missouri's most numerous and diverse category of wildlife, and with hundreds of species crawling, flying, and hopping just outside your back door, your yard is like a jungle waiting to be explored.



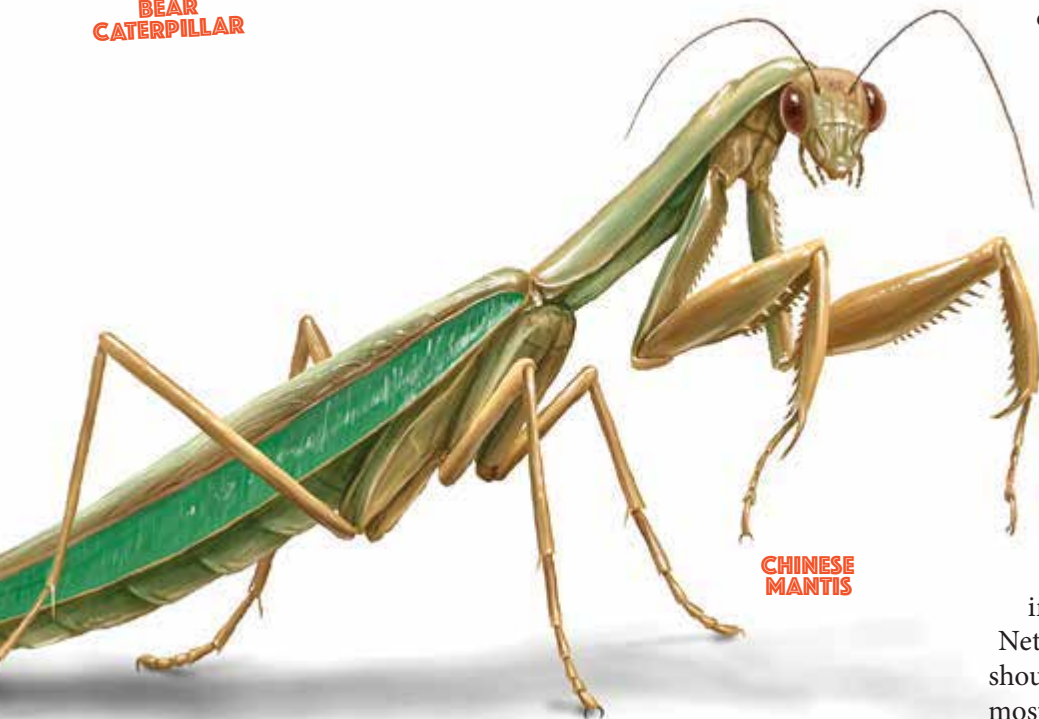
GREEN  
STINK  
BUG



WOOLLY  
BEAR  
CATERPILLAR

### The Backyard Expedition

During big-game safaris, hunters set out to pursue trophy animals like lions and leopards. You can approach your backyard expedition in much the same way. Keep a list of "trophy" insects and set out to find those. The insect world offers predators like dragonflies, tiger beetles, and robber flies that roam through your neighborhood, while herds of aphids and flocks of skippers migrate into the area as well.



CHINESE  
MANTIS

You can also take a more leisurely approach to your hunt by simply exploring whatever you come across. Insects are so varied and fascinating that they offer a good excuse to slow down and observe. Keep a guide like the Department's *Show Me Bugs* handy to aid in your exploration.

### Safari Equipment

Safari expeditions of the backyard variety don't require high-priced, specialized equipment. However, a few items — often found around the house — can aid the game-chaser's pursuits. Small containers like jars and disposable storage containers with lids and air holes are perfect for capturing and securing prey. Larger enclosures, such as aquariums, are ideal if you plan on keeping your find a little longer for observation and study. Whichever enclosure works for your adventure, it's best to let your game go within a day of capture. This keeps the enclosure ready for the next subject and teaches the youngest members of your hunting party responsible outdoor ethics.

Some additional tools you might find helpful on your exploration include tweezers or other tongs-like instrument, magnifying glass, and net. Nets are handy during an insect safari and should be of quality material, as it's the item most likely to take a beating.



## ***Make Your Backyard a Premier Insect Destination***

### **Top 10 Butterfly Nectar Sources:**

Aromatic aster  
Butterfly milkweed  
Prairie coreopsis  
Garden phlox  
New England aster  
Pale purple coneflower  
Rose verbena  
Sky blue aster  
Wild sweet William  
Yellow coneflower

### **Top 10 Native Bee-Friendly/ Sun-Loving Plants:**

Black-eyed Susan  
Foxglove beardtongue  
Golden Alexanders  
Gray-headed coneflower  
Lanceleaf coreopsis  
Lead plant  
Purple prairie clover  
Silphium sunflower  
Showy goldenrod  
Wild bergamot

**CARPENTER BEE**



Maddie studies a milkweed bug through a glass viewer. It's best to let your game go within a day of capture.





Backyard expeditions don't require high-priced, specialized equipment.

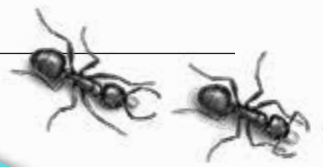
### I Like the Nightlife

If you think the safari stops at sundown, think again. There's a flurry of insect activity that occurs on your flowers and shrubs

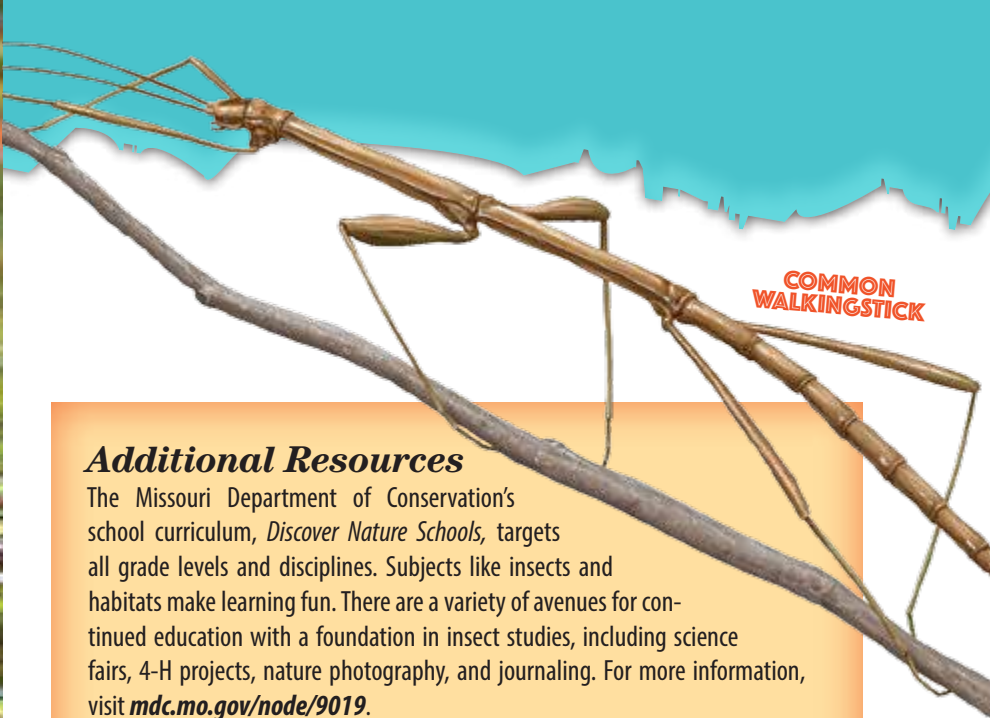
at night. Take false indigo shrubs (*Amorpha fruticosa*) as an example. By day, they are an attractive, purple-spike flower, but by nightfall, they are aflutter with moth traffic. And don't forget the star of the nighttime skies — the lightning bug. They come out and provide a crowd-pleasing light show for all ages.

The porch light is also a hotbed of activity for nighttime insect safari enthusiasts. Much as the waterholes of the Serengeti attract big game, porch lights attract a variety of insects. The critters are easy to observe, even if they scare easily. Those introverted insects tend to fly or crawl right back to the same spot.

SIX-SPOTTED  
TIGER BEETLE







COMMON  
WALKINGSTICK

### ***Additional Resources***

The Missouri Department of Conservation's school curriculum, *Discover Nature Schools*, targets all grade levels and disciplines. Subjects like insects and habitats make learning fun. There are a variety of avenues for continued education with a foundation in insect studies, including science fairs, 4-H projects, nature photography, and journaling. For more information, visit [mdc.mo.gov/node/9019](http://mdc.mo.gov/node/9019).

*Show-Me Bugs* introduces readers to some of Missouri's most fascinating and ecologically important wildlife. Use it to get to know some of the little creatures that help keep the Show-Me state clean, green, and natural. This book is finely detailed with full-color illustrations. It is fun to read; perfect for kids, families, teachers, and gardeners; and a good backyard insect safari companion. It is available for \$7.95 at the Department's Nature Shop online at [mdcnatureshop.com](http://mdcnatureshop.com).

Another source of endless information about insects and other Missouri wildlife is the Department's online field guide at [mdc.mo.gov/node/73](http://mdc.mo.gov/node/73).

### **Managing for a Backyard Safari**

Imagine the Missouri outdoors without insects. All of the urban and rural landscapes we enjoy would collapse. Insects play a vital role in the food chain and are important to every gardener, sportsman, and naturalist. By recognizing and learning more about our smallest wildlife, we gain countless benefits. There are advantages to transforming your landscape to make it a premier insect destination. It starts with the three basics of survival — food, water, and shelter.

Some insects people love to attract are butterflies, dragonflies, and pollinators. They bring beauty to the

landscape and many are beneficial for vegetable or flower gardens. Butterfly gardens are popular and they don't have to be formal — just adding a few selected Missouri wildflowers can bring an abundance of nectar-seeking butterflies to the yard. Host plants for caterpillars is another option for the natural gardener.

Getting outdoors is easy and fun. Your own backyard can be as adventurous as a trip to a national park or forest, while your flowerbeds, shrubs, and vegetable gardens can hold untold mysteries. Studying insects can be a family affair and a great way to enjoy our natural history together. Happy hunting! ▲

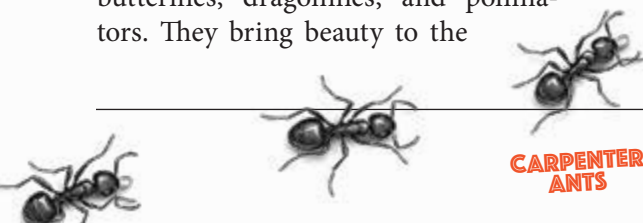
*Jeff Cantrell is the conservation education consultant out of the Neosho Office and holds proud to his Springfield Conservation Nature Center volunteer roots. He spends most of his free time exploring Missouri's natural areas while sharing his love for native wildlife and plants with others.*



MONARCH  
BUTTERFLY



DOGBANE  
LEAF BEETLE



CARPENTER  
ANTS





# Learning About **LARGEMOUTH**

A little knowledge and basic gear can help you  
land a lot of tasty table fare






BY MIKE ALLEN | PHOTOGRAPHS BY DAVID STONNER

**Crankbaits, jerkbaits, downbaits,** finesse rigs, spoons, electronics, GPS — all tools required to catch largemouth bass, right? Maybe if you're a pro. While these lures and tools can help professional tournament anglers catch a winning stringer, they're not required for the average

angler to have a great day fishing for largemouth. When it comes down to it, you can catch a limit of largemouth with just a few baits, lures, and gear.

That's because largemouth bass are actually fairly easy to catch if you have the right amount of

information and proper equipment and setup. They are large-sized fish, great fighters, and they can be caught during all seasons and times of day. Knowing a little about the basic ways to fish for largemouth bass will lead to successful fishing trips for many years. 

### **They'll Eat Just About Anything**

A largemouth bass will eat just about anything that will fit in its mouth. Its diet can consist of baitfish such as shad, minnows, smaller sunfish, and other small fishes (including other largemouth bass). Largemouth will also eat crayfish, earthworms, and other invertebrates, salamanders, frogs, small rodents and birds that mistakenly enter the water, and even snakes. Most lures are made to mimic one or more of these items, but they typically mimic largemouth's main food sources like baitfish, crayfish, worms, and insects. Knowing the main food sources found where you fish is key to any successful largemouth bass fishing trip.

Largemouth bass are generally lie-in-wait predators. They tend to hide near structures and wait for a meal to swim past. Then they move into

position and use their mouth and gills to “inhale” the food. This is known as the “strike,” and it is one of the reasons many people enjoy fishing for largemouth. This action is normally very intense and will send a quick, powerful jerk through your line and rod. Largemouth bass are also known to become very active when large schools of baitfish swim near them. Schools of largemouth bass will surround the school of baitfish, continually darting in to feed on anything in the way. This activity is normally brief, but if your timing is right, you can catch many largemouth bass in a short time. These can be some of the most exciting moments during a fishing trip.

### **They Prefer Standing Water**

Another key to a successful fishing trip is knowing where to find largemouth bass. The old adage,



Largemouth bass prefer standing water to a flowing stream. These fish will use habitat structures such as fallen trees, rock outcroppings, logs, and brush piles to hide from baitfish and attack when it is close enough to catch.



“fish where the fish are,” holds true with largemouth bass. They prefer standing water to a flowing stream. Lakes, ponds, backwaters of rivers, or impounded waters will typically contain more largemouth bass than rivers and streams. Most conservation areas throughout the state will have a small impoundment (pond or lake) that has been stocked with different fish. These ponds are great places to start trying to catch largemouth bass. To find them, visit Places to Fish at [mdc.mo.gov/node/2478](https://mdc.mo.gov/node/2478). There you can browse the fishing prospects, fishing report, Find MO Fish app, and the online Missouri Conservation Area Atlas, all of which can help you find your local conservation ponds and lakes.

### Look for Structure and Cover

Knowing a body of water has largemouth does not guarantee you will be able to show up, cast your bait, and catch a bass. Every type of fish uses the available habitat in a body of water by staging and feeding in different ways. Largemouth bass are very structure-oriented and will use many types of cover to hold (gather together) and feed. Habitat structures such as fallen trees, rock outcroppings, logs, and brush piles are very good places to begin fishing. Largemouth bass will use these structures to hide from baitfish and attack when it is close enough to catch. Normally, these structures can be seen extending into the water from the shoreline or sticking out of the water in deeper locations. Using a worm and bobber near these types of structures will usually be very effective at catching good numbers of bass, but be alert while fishing. Bass can easily pull a hook into the structure, causing the hook to come off or hang up.

Aquatic vegetation around the shoreline can also hold bass, but these brushy, weedy areas can be harder to fish. A shoreline angler must be able to cast a lure out away from the vegetation and bring it in close enough for hiding bass to attack. Again, a bass can easily grab the hook and pull it into the vegetation to become snagged. In this case, using a stronger test line will help to pull the hooked fish through the vegetation.

Not all bodies of water will have structures or vegetation to shelter fish, but there are still habitat areas that will hold largemouth bass more often than others. One is the terrain-based habitat structure. These are changes in lake-bottom contours that allow fish to hide or move quickly to



different areas. They can include drop-offs, creek channels, points, sunken islands, and any change in direction or material of the lake or pond bottom. You can spot most of these structural transitions by observing the shoreline. Look for changes from a flat, muddy shoreline to a steeper, rock shoreline. These transitional areas are some of the best places to find bass because these fish are consistent. If bass are holding in this kind of area one day, they are likely to hold in it another day. Travel around the water body and fish different locations, structure types, and depths. There may be places where you always find largemouth, but continue to scout other locations in order to avoid over-fishing one area. A good knowledge of the area and its fish locations will allow you to catch fish throughout your trip.

**A largemouth's main food sources are baitfish, crayfish, worms, and insects.**





**A spinning reel will make fishing a little easier for the novice angler. A closed-faced spinning reel (bottom) can be very easy to use but bulky in small hands. An open-faced spinning reel (top) can be more difficult to use but is much lighter and has a smaller gripping surface.**

### **A Little Equipment is All You Need**

While there are many different types of equipment and lures you can use to catch largemouth bass, you will need only a few simple items. A well-balanced setup of rod and reel is an essential starting point. Typically, a good bass-fishing rod is strong, light, and sensitive. A 6-foot-long rod with a medium action, which is noted near the handle, will be sufficient to cast many different lures and will be strong enough to handle the big ones.

Choosing a type of reel to mount on the rod is a matter of preference. Starting off with a spinning reel will make fishing a little easier for the novice angler. Two main types of spinning reels are available. Closed-faced spinning reels, which mount on the topside of the rod, require only the push and release of a button at the right time to cast. These reels can be very easy to use, but they can be bulky in small hands. Open-faced spinning reels hang from the underside of the rod and require the angler to hook the line with a finger and open the bail to cast and close the bail before reeling. These reels can be more difficult to use, but they are much lighter and have a smaller gripping surface. Most sporting goods stores will allow customers to test rod-and-reel combinations to find the best fit.

Line selection is the next step in a setup. With a 6-foot, medium-action rod, line size should be 6- to 8-pound test. This size will be strong enough to withstand many catches of good-sized largemouth bass and will be easy to cast with most baits and lures.

### **Live Baits vs. Lures**

Using live bait for largemouth bass is a great way to begin learning about these fish. Live bait, such as night crawlers or minnows, will attract more fish than artificial lures when rigged correctly. Night crawlers are very easy to use and much easier to keep alive than other types of live bait. Slide a night crawler onto a number 4 or 6 Aberdeen-style hook. Feed the hook through the worm from one end, and then leave just a bit of worm dangling off of the end of the point. Add a split-shot sinker to the line about 6 inches from the hook and worm. Using a bobber allows an angler to identify a fish bite, but don't just watch the bobber — feel the fishing rod. Notice what the bobber does and then how the fishing rod feels when the bobber moves. The amount of line between the sinker and the bobber will depend greatly on the area. Using minnows is also a great way to catch largemouth bass. Rig them similar to night crawlers, but hook the minnow just under the dorsal fin or hook under the jaw and through the nostril area.

While live bait can be very effective for largemouth bass, it does have a few downfalls. One of the main troubles with live bait is keeping it alive. This requires added equipment and space, can be messy, and can also limit the areas that can be fished. Live bait is also notorious for being lost on the cast or taken from the hook by a fish. It can also be tricky to target largemouth bass with



**Live bait will attract more fish than artificial lures, but it is notorious for being lost on the cast or taken from the hook by a fish. A majority of largemouth bass anglers prefer artificial lures (right), which are built to imitate baitfish and other food sources.**





## Love Me Some Largemouth

Keep or release? The tournament pros would tell you to release any largemouth you catch. But keeping largemouth, in accordance with regulations, also aids in keeping the fishery in that body of water healthy. A water body with a good balance of sport fishes (such as largemouth bass, crappie, bluegill, and catfish) and baitfish will consistently produce good numbers and sizes of each. Be sure to check the regulations each time you take a fishing trip, and feel free to bring home your limit of largemouth.

Some people (maybe the same ones who release all they catch) believe largemouth are not tasty. This view, in my experience, is not the case. Largemouth bass fillets are a flaky, white meat similar to walleye, and their flavor is richer than other sunfish like crappie and bluegill. If you enjoy eating these types of fish, you will find largemouth bass appealing. Largemouth bass can be prepared in the same ways as most other lean, white-fleshed fish. My preferred method is to roll the fillets in a mixture of cornmeal, flour, and spices to taste, then deep fry in oil or shortening at 350 to 400 F. This is a great way to enjoy



largemouth bass. Keeping the oil closer to 400 F is best, due to the thickness of most fillets. If the temperature drops much below 350 F, the meat will absorb more of the oil and become soggy. Next time you get a craving for fish, catch some largemouth bass and try them for dinner. I think you will be pleasantly surprised at how great it is!

live bait, such as night crawlers, because many bluegill and other species of fish will be attracted to it as well.

Artificial lures can be useful in many areas, and a majority of largemouth bass anglers prefer them. As noted before, most lures are built to imitate baitfish and other food sources, but they can also imitate injured and dying baitfish, which are much easier for bass to feed upon.



Several other lures can be effective in most areas. Spinner-type baits have metal blades that spin to create vibration and flash. Crankbaits are made of plastic or wood and usually have a “bill” on the front to dive into deeper water and vibrate. Jigs have a weighted head and a skirt made of marabou, bucktail, or soft plastic, which adds movement. Grubs and worms made of soft plastic are equipped with a tail that vibrates when the lure is moved. Having a tackle box with a few of each of these lures will usually improve the chances of catching largemouth bass in many different bodies of water.

For the beginner, there is no reason to spend lots of money buying fancy equipment. A hand-me-down or used rod-and-reel combination is perfectly acceptable. Hooks, sinkers, bobbers, night crawlers, minnows, stringers, and other small accessories can be found at a number of convenience stores or grocery stores on an impromptu fishing trip. Go find some water and some worms, and you’ll be catching largemouth bass in no time. ▲

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*Mike Allen is a resource assistant at Maramec Spring Hatchery in Phelps County. He has a passion for bass fishing, bowhunting, and spring turkey hunting. In fact, he enjoys almost any activity in the forest or near the water, especially if it includes friends and family.*





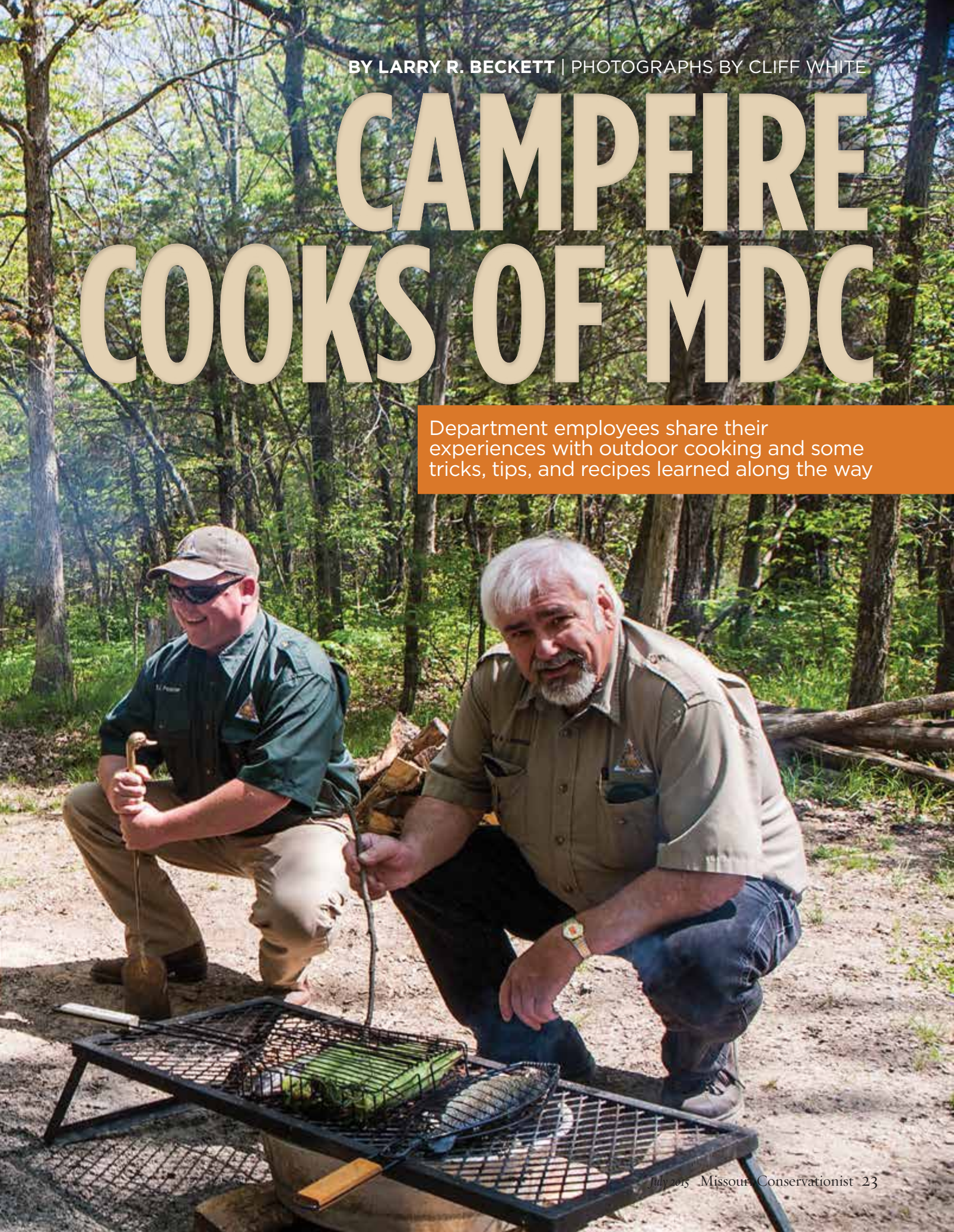
From left: Martha Daniels, Robin Grumm, Chris Capps, T.J. Peacher, and Larry Lindeman cook dishes over a campfire.



BY LARRY R. BECKETT | PHOTOGRAPHS BY CLIFF WHITE

# CAMPFIRE COOKS OF MDC

Department employees share their experiences with outdoor cooking and some tricks, tips, and recipes learned along the way







A campfire is the centerpiece of most camping excursions. It serves as a gathering place where family and friends can share stories and camaraderie. It offers warmth during chilly, star-filled nights. Most importantly, a campfire is where meals are prepared, cooked, and enjoyed.

The Missouri Department of Conservation understands the importance of a good campfire — it enhances the outdoor experience. Here are a few Department employees who have combined their love of the outdoors with their skills in the kitchen to earn the title of campfire cook.



## Robin Grumm

Robin Grumm has been a campground cook since childhood, when she and her family would spend vacations camping. Robin continues her love of outdoor cooking today as assistant manager and volunteer coordinator at the Runge Conservation Nature Center in Jefferson City, where she has a group of volunteers who offer outdoor cooking classes periodically. They strive to connect the participants with the source of their food.

"In at least one of our dishes, we will use wild edibles or wild game," Robin said. "We try to make the connection with the resource to show the field-to-table cycle."

Campfire cooking requires extra focus, but Robin enjoys the challenge.

"When I'm outside, it's all about being outside. I'm not doing other things," she said. "I also find it challenging to play around with the heat of the fire. You can turn your oven to 350 degrees or your burner to medium, but you have to manipulate the coals or the wood to change the heat on a campfire."

Robin's suggestion to her students: keep it simple.

"People feel that they need so much equipment," she said. "We tell them that they don't have to find a certain species of wood or have all of the bells and whistles to cook."

One of Robin's most popular campfire recipes is muffins baked inside orange rinds.

### Orange Muffins

#### Ingredients

- » Oranges
- » "Just add water" muffin mix, any flavor

#### Directions

1. **Cut** the oranges in half so the stem is on the bottom. With a spoon, remove all of the orange, leaving only the intact rind.
2. **Put** the muffin mix in a bowl and follow package directions. Mix completely and pour into each rind until it's about a centimeter from the top.
3. **Tear** off an 8-inch piece of aluminum foil and spray with cooking spray. Place the foil on top of the muffin mix and wrap around the orange.
4. **Repeat** for all the orange halves.
5. With a fork, **poke** a few holes in the foil to let steam escape. Place the oranges on a grate above the campfire.
6. **Wait** for muffin mix to come out of the holes. When it looks cooked or when you can stick a toothpick in the foil and it comes out dry, they are done.





## Larry Lindeman

Larry Lindeman has been an outdoor skills specialist in the Ozark Region for the past 10 years. Larry's love of cooking began as a child, when he helped his mother in the kitchen.

Larry's culinary interest carried over into outdoor cooking in 1971 when he was on a fishing trip at Lake Taneycomo with one of his college professors, Bob McLaren.

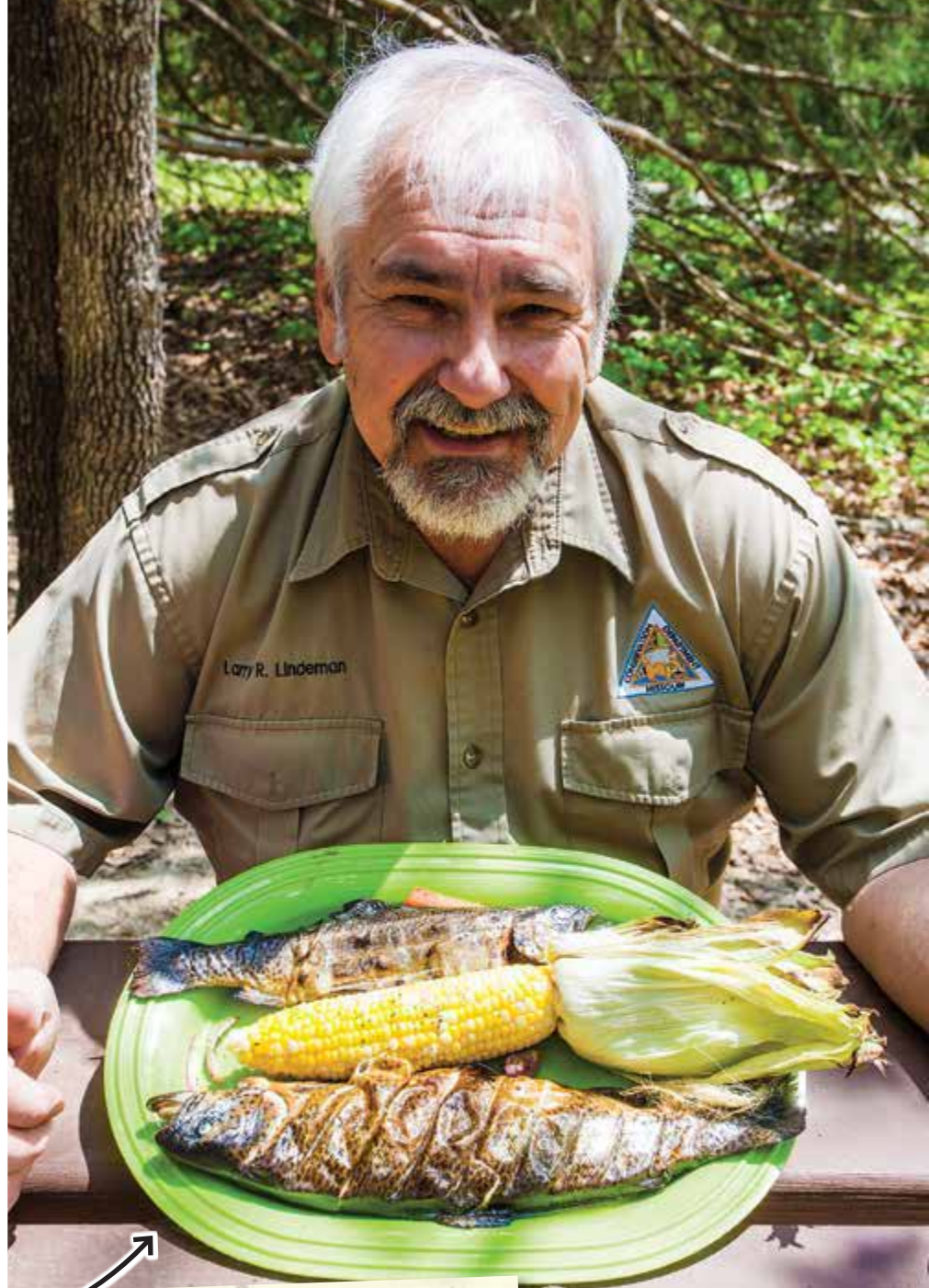
"After we caught a few trout, we gathered some wood and built a fire to cook them," he said. "Bob built a woven wire grill out of a handful of coat hangers. When the flames died down and we were left with coals, he put in a few green hickory sticks and put the fish on the grill."

Whether it was the fresh trout or the smoke from the green hickory sticks, Larry was impressed.

"I have never eaten any trout that tasted better than those that day," he said.

As an outdoor skills specialist, Larry teaches others what he has learned along the way. His advice is don't get in a hurry.

"Let the flames die down and cook on the coals," he said. "A lot of people try to rush and cook over the flames. They have a tendency to char the outside and leave the inside undercooked."



### Hickory Smoked Trout

#### Ingredients

- » Trout — whole, cleaned with head and skin on
- » Salt
- » Onions
- » Green peppers
- » Lemon juice

#### Directions

1. **Put** onions, peppers, and a pinch of salt inside the trout, and drizzle with lemon juice.
2. **Place** trout on grill over coals and add a few thumb-sized green hickory sticks to the coals.

3. After 5–6 minutes, **turn** the fish over. Cook for another 4–5 minutes and remove.

4. Gently **tease** away the skin on top. If the scales were left on, this is usually an easy task. Insert a fork along the backbone using the lateral line as a guide. Push away from you and lift up a bit to get the meat above the lateral line off the bone. Bring the fork toward you if the meat is below the lateral line. After removing all of the meat from the top, slowly lift up the head. Oftentimes the entire skeleton will remain intact and all of the bones will be removed at once.







## T.J. Peacher

T.J. Peacher is the outreach and education district supervisor in the St. Joseph office. Being a campfire chef is another outlet for his love of cooking.

"I do all of the cooking at home," he said. "Cooking on the campfire is a great change of atmosphere."

T.J. loves sharing the experience with his daughter, Brylee.

"We cook everywhere that we go camping," he said. "Part of our day is spent cooking, and it's a family thing that we do together. My daughter really enjoys that, and we have a great time. Hopefully, she is learning something along the way."

When cooking in a foil pack over a campfire, T.J. offers one trick.

"Put a sacrificial vegetable, like a sliced onion, on the bottom of the pack, so if it burns nobody cares," he said. "It will steam and put out a lot of juice and flavor."

One of T.J.'s favorite campfire recipes is sweet and sour chicken.

"I didn't invent it. I just stole it from scout leader John Campbell," he said. "He played around with it in his kitchen and came up with the recipe. We tried it on the campfire the next time that we went camping, and it was fantastic."

## John Campbell's Famous Asian Camping Foil Packet

### Ingredients

- » 1 cup hard rice that has been soaking in water for 30–60 minutes
- » 4 tablespoons water
- » 1 packet dry sweet and sour sauce mix
- » 4 cups fresh stir fry vegetables coarsely chopped and rinsed (peppers, carrots, onions, celery, watercress, etc.)
- » 2 skinless, boneless chicken breasts

### Directions

1. **Place** an 18-by-8-inch sheet of aluminum foil on a paper plate. Put one-half of the rice (still wet) in the center of the foil. Lay one chicken breast on top of the rice and put one-half of the vegetables on top of the chicken. Sprinkle one-half of the dry sweet and sour sauce mix on the vegetables.
2. **Fold** the east/west ends up and roll them down to the top of the food. Then roll down the north end.
3. **Pour** 2 tablespoons of water into the foil packet, then roll up the south end. It should be fairly tight.
4. **Repeat** the steps with the other sheet of foil and the other half of the ingredients.
5. **Place** the foil packets on coals that are hot but not flaming. The heat needs to be able to boil the water to cook the rice and the chicken. It will also steam the vegetables and make the sauce.

Cooking time should take 20–30 minutes, depending on the temperature of the coals.



## Chris Capps

Chris Capps is an outdoor skills specialist in the Kansas City regional office. He served as a scout master for 12 years, where he learned a lot about campfire cooking, but that isn't where he first started cooking over an open flame.

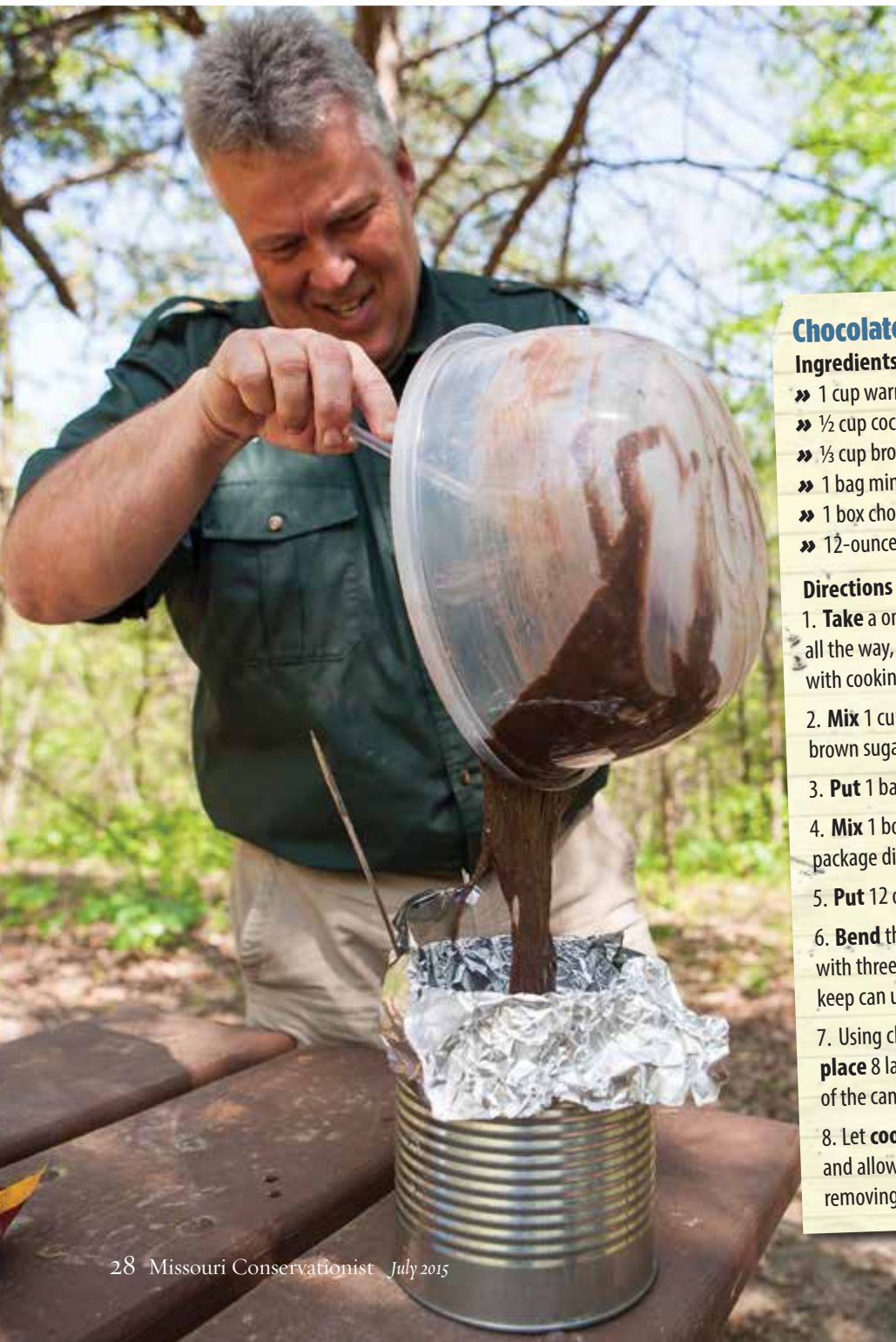
"Even as a kid, I liked to camp out," Chris said. "My buddies and I would go down to the creek for the weekend and cook our own fish."

Growing up in southern Missouri, he also spent a great deal of time camping with his family on the Current River.

"Mom would cook over the campfire and use a one-gallon can to make cakes and bread," he recalls. "I probably learned a lot about cooking outside from my mom and have fond memories from those days."

His love for outdoor cooking continues today. As an outdoor skills specialist, Chris teaches people about campfire cooking, and is quick to offer shortcuts to make it easier.

"If I know that I am going to cook potatoes, I will partially cook them before I go," he said. "Also, you can brown your hamburger or venison at home, put it in a plastic storage bag, and it will be ready to use at camp."



### Chocolate Cake in a Can

#### Ingredients

- » 1 cup warm water
- » ½ cup cocoa powder
- » ⅓ cup brown sugar
- » 1 bag miniature marshmallows
- » 1 box chocolate cake mix
- » 12-ounce bag chocolate chips

#### Directions

1. **Take** a one-gallon can (#10) and remove the metal lid almost all the way, but leave it attached. **Spray** the inside of the can with cooking spray, rub with shortening, or line with foil.
2. **Mix** 1 cup warm water with ½ cup cocoa powder and ⅓ cup brown sugar. **Pour** this mixture into the can.
3. **Put** 1 bag of miniature marshmallows on top of the mixture.
4. **Mix** 1 box of your favorite chocolate cake mix according to the package directions and **pour** batter over the marshmallows.
5. **Put** 12 ounces of chocolate chips on top of the cake batter.
6. **Bend** the lid of the can back in place. Wrap the can tightly with three layers of heavy-duty aluminum foil. Make sure to keep can upright.
7. Using charcoal briquettes that have reached a nice gray heat, **place** 8 large briquettes under the can and 10 briquettes on top of the can.
8. Let **cook** for 20–25 minutes, then **remove** the briquettes and allow the can to sit for another 15–20 minutes before removing the foil.





## Martha Daniels

Martha Daniels has worked for the Department for more than 26 years. She is the exhibits coordinator at the central office in Jefferson City, but is probably best known for hosting the cooking segment on the Department's Missouri Outdoors television show for 10 years. Although the cooking segment usually took place in the kitchen, Martha is no stranger to outdoor cooking.

"When we are floating or camping, we are usually cooking on a campfire," she said. "There is nothing like the camaraderie of being around a campfire, enjoying a meal, visiting about the day's activities, and listening to stories. I love being outdoors and it's wonderful to share some great food while enjoying beautiful scenery."

Martha encourages everyone to get out and try cooking outdoors.

"Just experiment," she said. "It doesn't have to be elaborate. Use what you have available, try a few different things, and find what you like. Talk to other people and visit with other campers that like to cook over open fires."

In her cooking experience, Martha has learned a few tricks.

"I use a lot of plastic storage bags because they take up less space," she said. "I also make soups or sauces in advance and freeze them in plastic bags. They can be used as a substitute for ice in the cooler to keep other food cold. I also use a lot of bamboo skewers. They are lightweight and can be used to grill asparagus or for any kind of kabob."

*Larry R. Beckett is a writer, photographer, and videographer. He grew up in southwest Missouri and enjoys preparing, sharing, and especially devouring campfire meals.*



### River Raft Asparagus

#### Ingredients

- » 1 large bundle of fresh asparagus spears, washed and trimmed
- » 1 lemon, zested and juiced
- » 2–3 tablespoons olive oil
- » Fresh ground pepper
- » Salt to taste

#### Directions

1. **Mix** all ingredients except asparagus in a small bowl.

2. **Group** 5–6 spears of asparagus on two small bamboo skewers. Continue for remaining spears.

3. **Place** asparagus in a plastic, resealable bag. **Pour** marinade into bag, seal, and turn to coat.

4. When ready to cook, **place** skewers of asparagus over campfire and roast until desired tenderness. **Serve** with fresh lemon.

*Note:* For a shorter cooking time on the campfire, asparagus can be lightly steamed or blanched for 1 minute at home, then cooled in ice water. Fit on skewers and marinate as above.

For more information on campfire cooking, including more recipes, visit [mdc.mo.gov/node/7337](http://mdc.mo.gov/node/7337).



## Bumblebee

LADEN WITH POLLEN and fueled with nectar, bumblebees, like the common eastern bumblebee (*Bombus impatiens*) pictured here, are critically linked to the native flora of Missouri. A great variety of plants benefit from pollination by bumblebees, and many species, including Dutchman's breeches, shooting star, gentians, and jewelweed, are largely dependent on bumblebees for pollination.

There are seven common species of bumblebees in Missouri, and all are similar in appearance with large, fuzzy bodies of black and yellow, usually banded in coloration about the abdomen. Many people confuse the carpenter bee with bumblebees because of its similar shape and color. Carpenter bees are easily distinguished from the bumblebee by their smooth (non-fuzzy) abdomen (see inset).

When I decided to write a story about bumblebees, I consulted with my friend Mike Arduser, a retired natural heritage biologist from the Missouri Department of Conservation. Mike is a nationally recognized expert on pollinators, especially bees. Mike and I often travel to natural areas in Missouri and beyond, I with my camera and Mike with his bee-collecting supplies. It's a joy to watch him snatch a bee from a flower with his thumb and two fingers to avoid being stung. It's reminiscent of Mr. Miyagi from the movie "The Karate Kid" as he attempted to pluck a fly from the air with his chopsticks.

I asked Mike about the bee's bulging pollen sacs, as seen here in the featured photo. He explained that the bee collects pollen over its fuzzy body as it forages, and then grooms with its legs to move the material into pollen baskets of stiff hairs. This provides for efficient transport of large pollen loads back to the nest. Bumblebees typically nest in cavities below ground but may also nest in brush piles, trash heaps, bird houses, and other areas with cover.

Mike describes bumblebees as "eusocial," meaning they have a very high level of social organization within their colony. In spring, a single fertilized female (queen) builds a large, irregular cell of wax and pollen and stocks it with pollen and nectar. Several eggs are laid in the cell. The female then enlarges it and supplies the young with additional food. Her offspring will become workers and take over the collection of pollen and nectar, feeding of young, and other nest duties. A colony can grow in size to as many as 200 workers before it gradually declines in autumn.

Bumblebee colonies are annual, similar to an annual plant. Only potentially new queens, called gynes, survive the winter by hibernating underground. In spring, having already mated in the previous year, some of them will be successful in beginning the process anew by building a colony with the help of their own offspring. Mike explained how life-or-death battles between gynes often occur as they compete for premium nest sites. In a cruel twist, a late-emerging gyne might take over the nest of a queen that surfaced earlier, thus recruiting the burgeoning workforce of her overtaken foe.

In parting, Mike left me with a philosophical reminder: "People shouldn't think of plants and bees as separate entities; they are intimately entwined in nature."

—Story and photographs by Danny Brown

📷 (main photo) 300mm lens • f/5.6 • 1/400 sec • ISO 200

📷 (inset photo) 200mm lens • f/5.6 • 1/500 sec

We help people discover nature through our online field guide.

Visit [mdc.mo.gov/node/73](http://mdc.mo.gov/node/73) to learn more about Missouri's plants and animals.



Carpenter bee









## The Lewis Family, Dean, Anna Mae and David D. Lewis Memorial Conservation Area

*Located in southwest Missouri just north of Branson, this Taney County area provides recreational opportunities such as hiking, hunting, and fishing.*

THIS 362-ACRE AREA, donated in 2012 by the late David D. Lewis, is fairly new to the Department. It was Lewis' wish to leave the property as a memorial to his family and to provide a place for the public to enjoy outdoor activities such as hunting, fishing, hiking, and nature viewing. The area is about 2.6 miles upstream from where Bull Creek enters Lake Taneycomo northeast of Branson. The area includes rolling hills and ridgetops, as well as a bottomland field and riparian areas along the creek. A variety of habitats, including open, post-oak savannas, glades, woodlands, and upland and bottomland fields, support a diverse population of wildlife.

Bull Creek runs along the southeast border of the area and is a great example of a pristine Ozark stream. Except in times of high water flow, the creek is so clear you can easily see the rock slab bottom. Fishing along the banks of Bull Creek can yield bass, goggle-eye, bluegill, and suckers. During the winter and early spring months, it's also possible to catch rainbow trout traveling up Bull Creek from the cold waters of Lake Taneycomo. Motorboat access upstream from Lake Taneycomo is limited due to the shallow depth of Bull Creek adjacent to the area. However, canoes and inflatable boats usually are able to navigate the creek except during low-water periods.



16–35mm lens • f/16 • 1/60 sec • ISO 400 | by David Stonner

A 1.65-mile hiking-only trail cuts across the middle of the area, beginning at the parking lot and ending at Bull Creek. Hikers may enjoy looking for a few geo-cache sites located along the trail. Because of the area's diverse habitats, there are many plants and animals to observe and photograph. Animals commonly seen include deer, turkey, rabbits, squirrels, bald eagles, and turkey vultures. Visitors may also enjoy an array of wildflowers along the trail during the spring and summer.

—Greg Cassell, area manager



### The Lewis Family, Dean, Anna Mae and David D. Lewis Memorial Conservation Area

**Recreation Opportunities:** Bird watching, hunting, fishing, hiking, wildlife and nature viewing, and photography

**Unique Features:** Bull Creek, oak savanna and woodlands, bottomland riparian areas

**For More Information:** Call 417-895-6880 or visit [mdc.mo.gov/a201302](http://mdc.mo.gov/a201302)





# MDC DISCOVER nature

To find more events near you, call your regional office (phone numbers on Page 3), or visit [mdc.mo.gov](http://mdc.mo.gov) and choose your region.

## DISCOVER NATURE — FISHING DERBY

**JULY 7 • TUESDAY • 6 P.M. — DARK**

*Northeast Region, Macon County Fairgrounds,  
1303 S. Missouri St., Macon, MO 63552*

*No registration required, call 573-815-7901,  
ext. 3872, for information*

*All ages*

Fishing is a great way to have fun outdoors, learn about conservation, and make memories. Our Discover Nature — Fishing program helps Missourians gain the skills and confidence to go fishing on their own. Join Missouri Department of Conservation staff for a fishing derby at the Macon County Fairgrounds to learn more about this popular pastime. Enjoy a backyard bass game, fish identification maze, and more. Poles and bait will be provided to kids so they can wet a line in the on-site pond.

## SHADE TREE WALK

**JULY 11 • SATURDAY • 9:30–11 A.M.**

*Southeast Region, Cape Girardeau*

*Conservation Nature Center, 2289 County  
Park Drive, Cape Girardeau, MO 63701*

*No registration required, call 573-290-5218  
for information*

*All ages, families*

Trees provide a variety of benefits, including shade from the hot sun. This walk will highlight Missouri's majestic shade trees and their unique features for tree identification. Learn what trees can do for you and your backyard!

## INSECTIGATIONS

**JULY 18 • SATURDAY • 9:30 A.M.—12:30 P.M.**

*Southeast Region, Cape Girardeau*

*Conservation Nature Center, 2289 County  
Park Drive, Cape Girardeau, MO 63701*

*No registration required, call 573-290-5218  
for information*

*All ages, families*

Ever wondered about the variety of insects in Missouri and why they look so strange? From the stag beetle's antler-like jaws to the ant lion's body, insects come in all shapes and sizes. Join us as we investigate insect adaptations, take insect hikes, visit our insect zoo, and make crafts.

## SWIMMING WITH THE FISHES

**JULY 18 • SATURDAY • 10 A.M.—2:30 P.M.**

*Kansas City Region, Discovery Center,  
4750 Troost Ave., Kansas City, MO 64110*

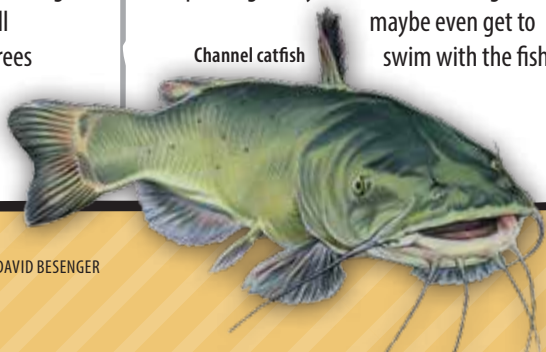
*No registration required, call 816-525-0300,  
ext. 1225, for information*

*All ages*

Fish have all the fun. They get to hang out in the water all summer while we have to endure the heat. Come learn how fish float, why scales are handy, and why our native fish hate alien invaders. While you're here, try your hand at fish printing, test your fish ID knowledge, and

maybe even get to  
swim with the fishes.

Channel catfish



# 6

## IDEAS FOR FAMILY FUN



## FROG GIGGING CLINIC

**JULY 24 • FRIDAY • 6:30 P.M.—MIDNIGHT**

*Central Region, Blind Pony Fish Hatchery,  
16285 BP Hatchery Drive, Sweet Springs,  
MO 65351*

*Registration required by July 22,  
call 660-641-3345*

*Youth, ages 7–17*

Frog gigging — or frogging — is a great way to enjoy Missouri outdoors while also putting food on the table the whole family can enjoy. Learn the basics of frog gigging safety, equipment, identification, and regulations. Then go frogging with the help of Department personnel. Staff will also teach participants how to clean their catch to take home and cook. Youth must be accompanied by an adult.

## BEGINNING ARCHERY

**JULY 27 • MONDAY • 6–7:30 P.M.**

*St. Louis Region, Jay Henges Shooting  
Range and Outdoor Education Center,  
1100 Antire Road, High Ridge, MO 63049*

*Registration required, call 636-938-9548, ext. 0  
Ages 10 and older, families*

Learn the fundamentals of shooting a bow and arrow based on the Missouri National Archery in the School Program (MoNASP). This is a fun program for the family, ages 10 and older. All equipment will be provided.





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## I Am Conservation

Gerald "Shag" Grossnickle poses for a photo near his home in Adair County, an area abundant with wild turkey due to his tireless efforts. At one time, the wild turkey population in Missouri was nearly eliminated, so in the 1960s, the Missouri Department of Conservation began a program to restore the bird in parts of the state. It was believed wild turkey couldn't survive in northern Missouri, where forest habitat was sparse, but Grossnickle was one of several strong advocates who convinced the Department to try an experimental restocking. The effort was a success, and many more turkey soon followed. Grossnickle, who celebrated his 100th birthday in June, was named a Master Conservationist in 2005 for his efforts. He has passed down a love of the outdoors and conservation to his three children, seven grandchildren, and eight great-grandchildren. While Grossnickle now mostly hunts turkey with a camera, he has remained a lover of the outdoors and can look back on a lifetime of successful and memorable hunting and fishing trips. He likes to point out that the Department's wild turkey restoration efforts were so successful that Missouri turkey are now given to other states trying to restore their own populations, often in exchange for other species the Department is trying to restore. "I firmly believe that the Conservation Department of Missouri may be the finest in the nation," said Grossnickle. "I believe all citizens should show their utmost support." —*photograph by Noppadol Paothong*